



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,290	03/09/2006	Rasmus Villefrance	86519.00002	8183
32294 7590 05/22/2009 SQUIRE, SANDERS & DEMPSEY L.L.P. 8000 TOWERS CRESCENT DRIVE 14TH FLOOR VIENNA, VA 22182-6212			EXAMINER PHUNG, LUAT	
			ART UNIT 2416	PAPER NUMBER
			MAIL DATE 05/22/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/571,290

Applicant(s)

VILLEFRANCE, RASMUS

Examiner

LUAT PHUNG

Art Unit

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 24-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 24-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1 and 24-27 are independent and have been amended. Claims 2-23 have been canceled. Claims 28-63 have been added. Claims 1 and 24-61 are pending.

Terminal Disclaimer

2. The terminal disclaimer filed on February 25, 2009 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent No. 7,313,136 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Objections

3. Claims 62 and 63 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 62 depends on claim 38, both having identical limitation. Similarly, claim 63 depends on claim 39, both having identical limitation. I.e., claims 62 and 63 appear to be redundant and should be canceled.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 24-27, 29, 30, 43, 44, 57 and 58 are rejected under U.S.C. 103(a) as being unpatentable over Lawande et al (US 6,219,697).

Regarding **claims 1 and 24-27**, Lawande discloses a system, a receiver, a transmitter, a method and a computer program for providing data communication between modules connected through a port connector (col. 1, lines 21-25; network connecting different modules), wherein said modules are configured to communicate a data package (Fig. 7C; col. 17, line 7; routing of packet) comprising in a layered structure (col. 1, lines 28-45; layering) a physical layer comprising a first and a second segment to encapsulate other layers in said data package (Fig. 5, 1394 Physical Layer 40, protocols TCP, UDP, IP, 1394 Link Layer in other layers; col. 1, lines 47+; col. 11, line 56 to col. 12, line 28; OSI model having lower layer encapsulating upper layers; IEEE 1394 physical layer including parameters, i.e., first and second segments, and encapsulated upper layers), a data link layer comprising a first header field for data payload type and a second header field for a data link layer version (Fig. 5, 1394 Link Layer 40; Fig. 7C, protocol_type and pn_version corresponding to data payload type

and data link layer version, respectively; col. 1, lines 46+; col. 5, lines 41, 42; IP packet encapsulated in IEEE 1394 packet, i.e., data link layer), and a network/transport layer comprising a third header field for a transmitting module's address, a fourth header field for a length of said data package (Fig. 7C, source_ID, ip_total_length; Fig. 7D, source_ID, total_length; col. 1, lines 46+), and comprising data payload. (Fig. 7C, ip_data).

Lawande discloses all of the subject matter except a fifth header field for an offset value for determination of data payload start in said data package. It is noted that using a field in a message to determine the start of payload is well known in the art. For example, it is well known in the art that the ASCII character set, the first and foremost specification for encoding of information for communication, defines control codes Start of Header (SOH) and Start of Text (STX), the latter is an indication in the data stream to determine the start of the data, i.e., payload. Furthermore Lawande discloses ip_fragment_offset (Fig. 7C). It is well known to one of ordinary skill in the art at the time of the invention that an IP payload comprises IP fragments, and fragment offset is used to indicate the start of a particular fragment, and since each fragment is transmitted in an IP datagram, the fragment offset in effect provides the start of the payload in that datagram. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use an offset field similar to the fragment offset field, e.g., the payload offset field, to determine the start of the payload.

Regarding **claims 29, 43 and 57**, Lawande further discloses wherein said data package further comprises in said network/transport layer a sixth header field prior to said data payload start in said data package for buffering. (Fig. 7C, ip_options)

Regarding **claims 30, 44 and 58**, Lawande further discloses wherein said data package further comprises a checksum field following the data payload. (Fig. 7C, data_CRC, ip_data)

7. Claims 28, 42 and 56 are rejected under U.S.C. 103(a) as being unpatentable over Lawande et al (US 6,219,697), in view of Shuen (US 5,572,528).

Regarding **claims 28, 42 and 56**, Lawande discloses all of the subject matter as recited previously in this office action except wherein the data link layer version comprises a major version, which is binary incompatible, and a minor version, which is binary compatible. Shuen from the same or similar fields of endeavor discloses wherein the data link layer version comprises a major version, which is binary incompatible, and a minor version, which is binary compatible (col. 31, lines 1-24). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the header containing the major and minor version numbers of Shuen in the message of Lawande in order to identify compatibility of services.

8. Claims 31-41, 45-55 and 59-63 are rejected under U.S.C. 103(a) as being unpatentable over Lawande et al (US 6,219,697), in view of Chuah (US Pub. 2003/0214928).

Regarding **claims 31, 32, 34-39, 45, 46, 48-53, 59 and 60**, Lawande discloses all of the subject matter except:

wherein said data package further comprises in said network/transport layer a seventh header field for a data package number, as recited in claims 31, 45 and 59;

wherein said data package further comprises in said network/transport layer an eighth header field for a data package fragment sequence number, as recited in claims 32, 46 and 60;

wherein said first segment further comprises a synchronization field for synchronizing the receiving module with the transmitting module, as recited in claims 34 and 48;

wherein said second segment of the physical layer comprises an index byte for providing the receiving module with information regarding segmentation or partitioning of data contained in a message, as recited in claims 35 and 49;

wherein said second segment further comprises a sequence and acknowledge field for providing a receiving module with information whether said data package is an acknowledgement message or an ordinary message, as recited in claims 36 and 50;

wherein said second segment further comprises a sequence and acknowledge field is adapted to inform whether an error was identified in the received data package, when said data package is an acknowledgement message, as recited in claims 37 and 51;

wherein said sequence and acknowledgement field is further adapted to inform a receiving module that a sequence number in said receiving module should be reset, as recited in claims 38 and 52; and

wherein said sequence and acknowledgement field is adapted to recognise acknowledgement messages and detect missing data packages, as recited in claims 39 and 53.

However Lawande discloses the use of protocols such as TCP, UDP over the IP, link and physical layers (Fig. 5). It is well known to one of ordinary skill in the art at the time of the invention that these layers of the protocol stack comprise the sequence number, i.e., data package number of claims 31, 45 and 59, fragment number, i.e., fragment sequence number of claims 32, 46 and 60, and hand-shake protocol including acknowledgement or other message of claims 36 and 50, and information about segmentation, synchronization and error detection and correction of claims 35, 37-39, 49 and 51-53. Specifically Chuah from the same or similar field of endeavor discloses a MAC header containing fields such as sequence control comprising sequence number and fragment number, frame control, reservation acks, acks for data, etc. (Fig. 6, 7 and 8; para. 97-117). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to construct a message of Lawande to include these additional fields of Chuah in headers of data packets to ensure full and accurate transmission in the ubiquitous IP network.

Regarding **claims 33, 47 and 61**, Lawande discloses all of the subject matter except wherein said first segment of said physical layer comprises a media field for

defining media across which the data package is transferred. Chuah from the same or similar field of endeavor discloses a header containing type and subtype fields describing the type of control and payload data. (Fig. 6F; para. 103). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to construct a message of Lawande to include the payload type field of Chuah to optimize routing of data packets.

Regarding **claims 40 and 54**, Lawande further discloses wherein said second segment further comprises a fill field for ensuring that all data packages sent over said port connector contain an even amount of bytes. (Fig. 7C, padding; col. 18, lines 3-7)

Regarding **claims 41 and 55**, Lawande discloses all of the subject matter except wherein said second segment further comprises a parity field for storing parity calculated on the basis of the data package excluding the parity field. Chuah from the same or similar field of endeavor discloses wherein said second segment further comprises a parity field for storing parity calculated on the basis of the data package excluding the parity field. (Fig. 6A, FCS; para. 97). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to construct a message of Lawande to include the FCS field of Chuah to optimize routing of data packets.

Claims 62 and 63 are similar to claims 38 and 39, and are therefore rejected under the same reason set forth in the rejection of claims 38 and 39.

Response to Amendment

9. Applicant's arguments filed on February 25, 2009 have been fully considered but they are not deemed to be persuasive.

10. On pages 21-22, applicant's representative argues that:

Applicant respectfully submits that the Office Action has attempted to identify corresponding elements, for those of claim 1, in Lawande by selecting features of any elements without consideration for the factual association described in the description. This is improper, as both the claims and the references must be considered as a whole, and the claims must be read in light of the specification.

Certain embodiments of the present invention involve the provision of a number of fields within the header of the transported packet, such as an IP, or OBEX type packet, where (on the other hand) Lawande discusses the provision of fields in the header of the enveloping layer IEEE 1394.

Examiner respectfully disagrees because:

If Applicant argues that the claimed fields belong to headers of IP or OBEX type packets, Examiner does not see such a limitation in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., IP or OBX type packets) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The examiner notes the broadest reasonable interpretation in light of Applicant's specification. Lawande indeed discloses the fields belonging to header of a transported packet by integrating the IP protocol with the lower IEEE 1394 physical and link layers (col. 2, lines 1-2; col. 4, lines 60-61).

11. On pages 22, applicant's representative argues that:

From figure 5 of Lawande it is evident that the IP packet is provided on a different layer than the Common Packet Header (CPR), which is a part of the IEEE link layer, as that term would be understood to one of ordinary skill in the art. Furthermore, in column 17, in Lawande, it is stated that the protocol IEEE 1394 "has a field in the header which has memory information of the target of the packet of the data." However, to integrate the two protocols, the field is modified, putting in the "protocoltype" field in the packet header.

Hence, it is clearly shown that the "protocoltype" field according to Lawande is located in the header of the IEEE 1394 protocol, whereas the "data payload type" field according to certain embodiments of the present invention is located in the header of the transported packet, or (more specifically) the data segment. This is further supported in the description portion of the present application on page 15, lines 18- 21: "in this context when referring to a header section, the header section of the data segment is meant unless specifically stated otherwise." Accordingly, Lawande does not disclose a protocol type identifier in the header of the encapsulated data segment.

Examiner respectfully disagrees because:

As a recap of the rejection of claim 1, Lawande discloses ... a data link layer comprising a first header field for data payload type and a second header field for a data link layer version (Fig. 5, 1394 Link Layer 40; Fig. 7C, protocol_type and pn_version corresponding to data payload type and data link layer version, respectively; col. 1, lines

46+; col. 5, lines 41, 42; IP packet encapsulated in IEEE 1394 packet, i.e., data link layer).

As per a response above, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In particular the claim recites a data link layer comprising the data payload type, constituting the IEEE 1394 link layer comprising the protocol type in Lawande, as shown in the rejection of claim 1.

12. On page 23, applicant's representative further argues that:

More specifically, certain embodiments of the present invention relate to the provision of a "data payload type" field in the header of the data segment encapsulated in between the two segments of the physical layer referred to in claim 1 and shown (in one embodiment) as 12a and 12b in Fig. 1a. This, however, is not reflected in fig. 7c in Lawande, because Lawande does not disclose what is recited in claim 1.

Lawande, furthermore, would not lead one of ordinary skill in the art toward the claimed invention. Lawande has been considered (by the USPTO) as the closest prior art, since it allegedly has some elements in common. The objective problem to be solved by a person of ordinary skill in the art in light of Lawande could be characterized as follows: How to integrate IEEE 1394 protocols with IP protocols. A person of ordinary skill in the art facing this problem could perhaps, in light of Lawande, know how to integrate a IEEE 1394 protocol with IP protocols.

It would not, however, be obvious for a person of ordinary skill in the art to provide a header of a data segment with a field specifying the content of said specific data segment. More specifically, certain embodiments of the present invention relate to the provision of backward and forward compatibility of a data link layer protocol in a system of connecting modules through a port connection. Further, another object of certain embodiments of the present invention relate to the way of managing packets of a number of different protocols simultaneously. These objects (nor any similar) cannot be found in the cited art. Thus, the cited art would not lead one of ordinary skill in the art toward the claimed invention.

Examiner respectfully disagrees.

If Applicant argues that the claims require backward and forward compatibility, and a way of managing packets of a number of different protocol simultaneously, Examiner does not see such a limitation in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., compatibility and different protocols simultaneously) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

As a recap of the rejection of claim 1, Lawande discloses ... a physical layer comprising a first and a second segment to encapsulate other layers in said data package (Fig. 5, 1394 Physical Layer 40, protocols TCP, UDP, IP, 1394 Link Layer in other layers; col. 1, lines 47+; col. 11, line 56 to col. 12, line 28; OSI model having lower

layer encapsulating upper layers; IEEE 1394 physical layer including parameters, i.e., first and second segments, and encapsulated upper layers).

The examiner notes the broadest reasonable interpretation in light of Applicant's specification. The claimed physical layer corresponds to the IEEE 1394 physical layer of Lawande, and as it is well known to one of ordinary skill in the art, IEEE 1394 specification provides for parameters, i.e., first and segments, necessary for transmission of encapsulated data from upper layers.

An alternate interpretation is that the physical layer is formed by data from the upper layers, and Lewande discloses the format of IP packet together with the IEEE 1394 layer, thus forming first and second segments at the physical layer. (Fig. 7C)

13. On pages 24 and 25, applicant's representative further argues that:

Additionally, Lawande does not disclose "an offset value for determination of data payload start in said data package." According to the description of the present application, on page 5, line 28, to page 6, line 3, the offset value can provide means for compensating for future changes to the network/transport protocols, since the receiving module (through the offset value) may jump directly to the payload start when the receiving module does not require the potential data from the header.

Furthermore, according to the description of the present application on page 18, lines 20-28, the offset field can be incorporated in the header section to make the header backward compatible. When future fields are added to the header, any software can forward payload data even though the software is aware of the additional fields,

since the software may forward the data package based on the Offset and the Version field. Hence, this field can permit compensation for future extensions of the header section, as there might be a need in the future for additional fields in the header. These extensions can be added while still being backward compatible, the Offset field will tell the receiving entity where the actual data package starts.

In contrast to the above, and in contrast to the feature "an offset value for determination of data payload start in said data package," the common packet header in Fig. 7C of Lewande contains a destination offset field in order to comply with the IEEE 1394's requirement of including memory architecture information. However, the reference to `ip_fragment_offset` in Lewande is a part of the IP protocol, which has to do with fragmenting a large non-IP packet into several, smaller IP packets. More specifically, to fragment a datagram, the header size is used to calculate how many fragments are required. The header of the original datagram is then copied into the headers of each of the fragments. The fragment offset reflects the position of the fragment within the original datagram. Each fragment becomes its own datagram and is routed independently of any other datagrams. This makes it possible for the fragments of the original datagram to arrive at the final destination out of order. At the final destination, the fragment offset field tells the receiver how to order the fragments. Hence, the concept of the Offset field according to the discussion in the present application's specification (and recited in claim 1: "an offset value for determination of data payload start in said data package") is not disclosed in Lewande.

Indeed, in Lewande there is nothing that would lead a person skilled in the art closer in respect of using an offset field in the way it is used according to the present claims. Furthermore, the solution according to Lewande may have a number of drawbacks. Firstly, the `protocol_type` field is multiplexed with the memory information field, making it complex when decoding the field. Secondly, the solution according to Lewande renders it difficult or impossible to mix different protocol types in the same connection. Lewande is specifically designed for transfer of IP messages, whereas certain embodiments of the present invention allow a combination of multiple protocols sent simultaneously on the same connection without resetting or changing its state. For instance, OBEX and IP packages can be sent alternating in respect to each other without resetting the connection.

Examiner respectfully disagrees.

If Applicant argues that the claims require multiple protocols such as IP or OBEX to be sent simultaneously on the same connection without resetting or changing state, Examiner does not see such a limitation in the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., simultaneous support of multiple protocols) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The examiner notes the broadest reasonable interpretation in light of Applicant's specification. As a recap of the rejection of claim 1, Lawande discloses Lawande

discloses `ip_fragment_offset` (Fig. 7C). It is well known to one of ordinary skill in the art at the time of the invention that an IP payload comprises IP fragments, and fragment offset is used to indicate the start of a particular fragment, and since each fragment is transmitted in an IP datagram, the fragment offset in effect provides the start of the payload in that datagram. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use an offset field similar to the fragment offset field, e.g., the payload offset field, to determine the start of the payload. Thus Lawande discloses "an offset value for determination of data payload start in said data package", as claimed.

As stated in the rejection of claim 1, using a field in a message to determine the start of payload is well known in the art. For example, Connery et al (US Patent 5,937,169, i.e. WO 99/22306, prior art reference provided in Information Disclosure Statement by Applicant form) discloses a Data Offset field which indicates where the data payload begins (Fig. 4, element 112; col. 12, lines 18+). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to include the data offset field as taught by Connery in the header of packet in the system of Lawande in order to quickly identify the start of the payload and thus effectively perform packet processing.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form 892).

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2416

/Ricky Ngo/

Supervisory Patent Examiner, Art Unit 2416